

CLAIMS

- 1 1. In combination with an actuator within which maximized magnetostriction deformation is
2 induced by magnetic fields crystallographically applied in a predetermined direction; the
3 improvement residing in: means for transferring force produced by said applied magnetic fields in
4 a direction perpendicular to said predetermined direction; and means for converting said force
5 into a substantially enlarged output motion.
- 1 2. The combination as defined in claim 1, including a plate member to which said output
2 motion is imparted; and a plurality of magnetostrictive material slabs within which said
3 magnetostrictive deformation is induced.
- 1 3. The improvement as defined in claim 2, wherein said force transferring means comprises:
2 a plurality of interconnectors on which said magnetostrictive material slabs are positioned; and
3 retainer means projecting from each of the interconnectors in engagement with the slabs for
4 preventing said deformation thereof in said perpendicular direction to produce the transferring
5 force.
- 1 4. The improvement as defined in claim 3, including means for exerting a prestress bias on
2 the force transferring means.
- 1 5. The improvement as defined in claim 1, including means for exerting a prestress bias on
2 the force transferring means.

1 6. A magnetostrictive actuator, comprising: a ground member; an output member; magnetic
2 circuit means for inducing output motion of the output member in one direction perpendicular to
3 maximized magnetostriction produced by applied magnetic fields and prestress means for holding
4 the magnetic circuit means assembled under bias between the ground and output members.

1 7. The actuator as defined in claim 6, wherein the magnetic circuit means comprises: a
2 plurality of layers held assembled in contact with the ground and output members by the prestress
3 means; each of said layers having spaced sides and interconnectors extending between said sides
4 in said one direction; a plurality of magnetostrictive material slabs positioned on the
5 interconnectors in each of the layers; wiring coil means for generation of the magnetic fields
6 applied to the slabs; and retainer means on the interconnectors for transfer of forces between the
7 ground and output members in said one direction.